MARYLAND
DEPARTMENT OF
BUDGET & MANAGEMENT

DBM / OIT / PMO
The System Development Life Cycle (SDLC)

May 17, 2006

SDLC Workshop

SDLC Workshop Agenda

1:00 Introductions & Expectations

- Objectives
- SDLC Purpose
- Roles & Responsibilities

1:30 The SDLC Phases and Products

- Lessons Learned

4:00 Conclusion

Objectives for Today

- An information / experience sharing session for Project Managers to discuss the desired outcomes of each of the 10 SDLC phases
- An iterative learning process - no canned answers, but a guaranteed opportunity to walk away with a much stronger understanding of the State's SDLC methodology and how it can improve your or your Agency's Project Management activities

SDLC Purpose

- The **methodology** provides IT Project Managers with the consistent tools to help ensure successful implementation of systems
- The **documentation** provides a consistent mechanism to ensure sign-off on the requirements and implementation of the system
- The **process** provides the visibility of design, development, and implementation status needed to ensure delivery on-time and within budget

Roles & Responsibilities

Successful system implementation requires close coordination and partnership among:

- **Executive Sponsor**– identifies priorities and the business needs, approves most SDLC products
- **Agency CIO** - determines how best to employ technology, approves most SDLC products
- **State CIO** - approves project funding and provides oversight and guidance; and
- **Agency Technical / Functional Staff** – executes the SDLC, and creates and reviews SDLC products

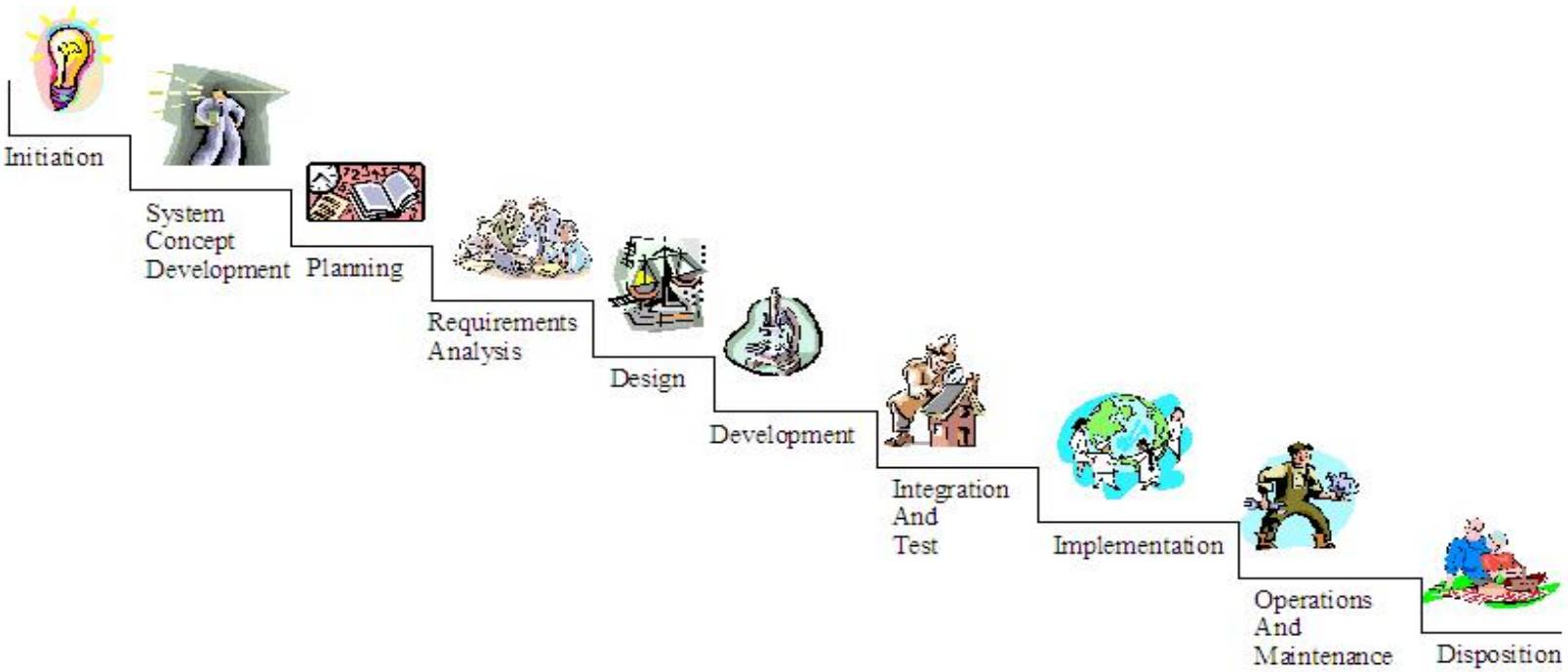
SDLC Context

- A **methodology** by the State CIO for managing Major Information Technology Development Projects (MITDPs)
- A **flexible** approach for your Agency and project
- The **level of effort varies** based on the phase
- SDLC information presented - in four volumes:
    1. Introduction
    2. SDLC Phases
    3. Glossary and Acronyms
    4. Templates
- All available on the web: **www.dbm.state.md.us**

The SDLC Phases

1. Initiation
2. System Concept Development
3. Planning
4. Requirements Analysis
5. Design
6. Development
7. Integration and Test
8. Implementation
9. Operations & Maintenance
10. Disposition

Introduction to the SDLC



1. Initiation

The purpose of this phase is to:

- Identify and define an opportunity to improve business operations for the organization;
- Identify significant assumptions and constraints on potential solutions to that need;
- Explore alternative concepts and methods to satisfy the need and question the need for technology, i.e., will a business process change offer a solution?; and
- Assure executive business and executive technical sponsorship.

1. Initiation Phase Products

Concept Proposal
Project Management Charter

2. System Concept Development

The purpose of this phase is to:

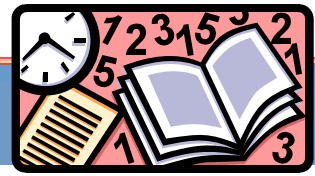
- Determine the feasibility and appropriateness of the alternatives;
- Identify system interfaces;
- Identify basic functional and data requirements to satisfy the business need; and
- Establish system boundaries, identify goals, objectives, critical success factors, and performance measures.

2. System Concept Development (Cont.)

- Evaluate costs and benefits of alternative approaches to satisfy the basic functional requirements;
- Assess project risks;
- Identify and initiate risk mitigation actions; and
- Develop high-level technical architecture, process models, data models, and a concept of operations.

2. System Concept Development Phase Products

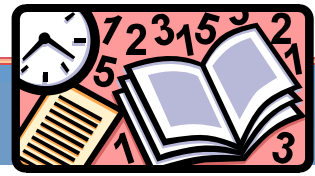
ITPR (Information Technology Project Request)
System Boundary Document
Risk Management Plan



3. Planning

The purpose of this phase is to:

- Develop a plan that documents the approach and includes a discussion of methods, tools, tasks, resources, project schedules, and user input;
- Establish personnel assignments, costs, the project schedule, and target dates; and
- Create a project management plan with component plans for acquisition, configuration management, quality assurance, concept of operations, system security, verification and validation, and systems engineering management.



3. Planning Phase Products

Project Management Plan

4. Requirements Analysis

The purpose of this phase is to:

- Further refine and document the functional and data requirements;
- Complete business process reengineering of the functions to be supported, e.g., verify what information drives the business process, what information is generated, who generates it, where the info. goes, and who processes it;
- Develop detailed data and process models including system inputs and outputs; and
- Develop the test and evaluation requirements to determine acceptable system performance.

4. Requirements Analysis Phase Products

Requirements Document
Test and Evaluation Master Plan

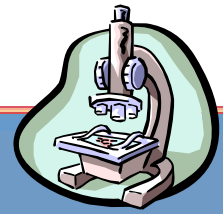
5. Design

The purpose of this phase is to:

- Identify potential risks and define mitigating design features;
- Perform a security risk assessment;
- Develop a conversion plan to migrate current data to the new system;
- Determine the operating environment;
- Define major sub-systems and their inputs and outputs;
- Allocate processes to resources; and
- Prepare detailed logic specifications for each software module.

5. Design Phase Products

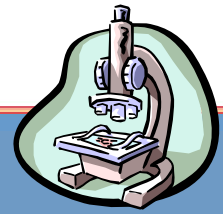
System Design Document
Security Risk Assessment
Contingency Plan



6. Development

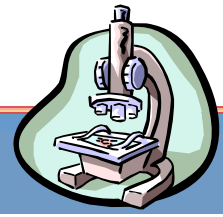
The purpose of this phase is to:

- Translate the detailed requirements and design into system components;
- Test individual elements (units) for usability; and
- Prepare for integration and testing of the IT system.



6. Development Phase Products

Software Development Document
System Software
Test Files/Data
Integration Document
Test Analysis Report
Conversion Plan



6. Development Phase Products (cont.)

Implementation Plan
Operations and Maintenance (O&M) Manuals
System Administration Manual
Training Plan
User Manual

7. Integration and Test

The purpose of this phase is to:

- Integrate subsystems and conduct system, security, and user acceptance tests;
- Test at the development facility by the contractor and possibly supported by end users;
- Test as a deployed system with end users working together with contract personnel; and
- Conduct operational testing by the end user alone performing all functions.

7. Integration and Test Phase Products

Test Analysis Approval Determination
Test Problem Reports
IT Systems Security Certification & Accreditation

8. Implementation

The purpose of this phase is to:

- Install the system to support the intended business functions;
- Compare system performance to performance objectives established during the planning phase; and
- Notify and train users, install hardware, load software onto production computers, and integrate the system into daily work processes.

8. Implementation Phase Products

Delivered System Documentation
Change Implementation Notice
Version Description Document
Post-implementation Review Report

9. Operations & Maintenance (O&M)

The purpose of this phase is to:

- Operate, maintain, and enhance the system;
- Certify that the system can process sensitive information;
- Conduct periodic assessments of the system to ensure the functional requirements continue to be satisfied; and
- Determine when the system needs to be modernized, replaced, or retired.

9. O&M Phase Products

Program Trouble Reports
Change Implementation Notice
In-Process Review
User Satisfaction Review

Note: These products are approved by the Systems Manager and the Agency CIO

10. Disposition

The purpose of this phase is to:

- Ensure the orderly termination of the system and preserve vital information about the system;
- Ensure each system has an interface control document defining inputs, outputs and data exchange; and
- Verify via signatures that all dependent users and impacted system administrators are aware of disposition.

10. Disposition Phase Products

Disposition Plan
Post-termination Review Report

Resources

Documentation on the web, key word: **SDLC**

www.dbm.state.md.us

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